

Proposed COMAL Standard

The passing of Identifiers to Procedures

Throughout this document the word 'procedure' applies to both procedures and functions.

Introduction

One of the more powerful features of programming languages such as PASCAL that has not been incorporated in COMAL is the ability to pass the names of procedures as parameters. This enables a procedure to call another general procedure by referring to it by a local name introduced in the formal parameter list. At present it is possible to IMPORT procedures into CLOSED procedures, but the actual name of the procedure required must be stated by the IMPORT statement.

Proposed extension of parameter syntax

It is proposed that some new prefixes are allowed in the formal parameter list of procedures, to be of similar construction as the present REF modifier:

New formal parameters

<FUNC> <identifier>
<PROC> <identifier>

So a typical procedure call could be:

options (set_up, 10, factorial, 6)

corresponding to the procedure:

PROC options (PROC procedure, a, FUNC function, b)

 procedure (a)

 PRINT function (b)

ENDPROC options

FUNC factorial(x)

 IF x > 1 THEN

 RETURN x * factorial(x-1)

 ELSE

 RETURN 1

 ENDIF

ENDFUNC

Note the parameters required by the function/procedure which is being passed are not specified in the formal, or actual parameter lists; in the above example the function factorial takes a numeric parameter. Errors which are due to mismatching of parameters would be generated at run-time. The local name for the function passed remains accessible until the end of the procedure being executed, in the same manner as other local parameters. The procedure passed would still be accessible by its global name from within the procedure, providing of course that it was not CLOSED.

It is also proposed that similar constructs are allowed in the IMPORT statement, as is the case for all types of formal parameters at present. So a statement like:

```
IMPORT PROC a, base, c, FUNC function
```

would be allowed.

Discussion

It is hoped by the author that some similar mechanism for passing blocks of DATA into procedures will be possible (ref. paper on proposal for a structured DATA statement). If some structured data statement is agreed then a parameter of the form:

```
DATA <identifier>
```

could also be allowed in the formal parameter list.